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COSMETICS, PERFUMES AND INCENSE IN ANCIENT EGYPT

By A. LUCAS

Cosmetics are as old as vanity. In Egypt their use can be traced back to almost the earliest period of which burials have been found, and it continues to the present day.

The ancient Egyptian cosmetics included eye-paints, face-paints, and oils and solid fats (ointments), all of which are here considered.

Eye-Paints.

The two commonest eye-paints were malachite (a green ore of copper) and galena (a dark grey ore of lead), the former being the earlier of the two, but being ultimately largely replaced by the latter, which became the principal eye-paint of the country. Both malachite and galena are found in the graves in several conditions, namely, as fragments of the raw material, as stains on palettes and stones on which this was ground when required for use and in the prepared state (*kohl*), either as a compact mass of the finely ground material made into a paste (now dry) or more frequently as a powder. Malachite is known from the Badarian and earliest predynastic period^{1,2,3} until at least the Nineteenth Dynasty⁴, while galena does not appear before late predynastic times^{3,5} and continues until the Coptic period⁴.

The crude form of both malachite and galena was often placed in the graves in small linen or leather bags. The prepared form has been found contained in shells⁶, in segments of hollow reeds, wrapped in the leaves of plants and in small vases, sometimes reed-shaped.

When *kohl* is found as a mass, as distinct from a powder, this has often manifestly shrunk^{7,8} and has also sometimes acquired markings from the interior of the receptacle⁷, from which it is evident that such preparations were originally in the condition of a paste, which has dried. With what the fine powder was mixed to form the paste has not been determined, though, since fatty matter is absent⁷, the use either of water or gum and water seems probable.

The composition of the ancient Egyptian *kohl* has been described by several writers: for example, by Wiedermann⁹ (from analyses by Fischer); by Florence and Loret¹⁰ (who also quote Fischer's analyses and in addition give particulars of a few earlier ones and

¹ G. Brunton, *Qau and Badari*, 1, 63.

² G. Brunton and G. Caton-Thompson, *The Badarian Civilisation*, 31, 41, 85-87, 99, 102, 103, 109.

³ W. M. Flinders Petrie, *Prehistoric Egypt*, 43.

⁴ A. Wiedermann, *Varieties of Ancient Kohl*, in *Medum*, W. M. Flinders Petrie, 42, 43.

⁵ G. Brunton, *op. cit.*, 13, 31, 63, 70.

⁶ Shells were also employed as receptacles for pigment other than eye-paint.

⁷ A. Wiedermann, *op. cit.*, 42.

⁸ Particularly noticed in the case of dry pastes in shells.

⁹ A. Wiedermann, *op. cit.*, 41-44.

¹⁰ A. Florence and B. Loret, *Le collyre noir et le collyre vert*, in *Fouilles à Dachour*, J. de Morgan, 1895, 153-164.

of two of their own); by Barthoux¹ (who examined various specimens thought to be kohl) and by the writer² (who has analysed a large number of specimens, the results of a few of which have recently been published)³.

The results of the analyses referred to, omitting those of Barthoux, which will be dealt with separately, show that the material was galena in 37 cases out of 58⁴ (approximately 64 per cent.), while the rest included carbonate of lead⁵ (2); black oxide of copper (1); brown ochre (5); magnetic oxide of iron (1); oxide of manganese (6); sulphide of antimony⁶ (1); malachite⁷ (4), and chrysocolla, a greenish-blue ore of copper (1).

It will be seen that only one of the specimens consisted of an antimony compound and only three others contained any antimony compound and those only a trace, manifestly present as an accidental impurity. The general idea, therefore, that ancient Egyptian kohl always either consisted of or contained antimony or an antimony compound is wrong, and hence it is most misleading to term it *stibium* (an early Latin name for sulphide of antimony, transferred later to the metal), as is sometimes done. The mistake possibly arose from the fact that among the Romans an antimony compound, called by Pliny⁸ *stimmis* and *stibi*, was employed in eye-cosmetics and eye-medicines.

Lane states⁹ that the ordinary Egyptian kohl of his day consisted of smoke-black (soot) made by burning either a cheap kind of frankincense or the shells of almonds and that the special quality used on account of its supposed medicinal properties contained, besides carbon, a variety of other ingredients, which he enumerates, and which include lead ore, but among which there is no mention of any antimony compound. The present-day Egyptian kohl also consists of soot, made according to Brunton¹⁰ by burning the *qurtum* plant (*Carthamus tinctorius*), and is applied by means of a small wooden, bone, ivory or metal rod, the tip of which is moistened with water and dipped into the powder. Brunton states that these rods only began to appear in the Eleventh Dynasty, and he suggests that before that time the kohl was put on with the finger. Budge found¹¹ that certain specimens of modern kohl from the Sudan consisted of black oxide of manganese.

Barthoux's account of the composition of ancient Egyptian kohl¹² is very disappointing, as the dates and particulars of origin of the specimens, as well as the number of each kind examined, are omitted. Although the correctness of the analytical results is not questioned, it is doubtful whether several of the specimens were eye-paints and whether others were even cosmetics of any sort. The greater proportion consisted wholly or partly of galena; the rest included carbonate of lead; a compound of antimony and lead (the only one in which any antimony compound occurred); vegetable black (*i.e.* soot obtained by burning vegetable matter); compounds of arsenic (both with and without admixed iron pyrites, some being orange-coloured and probably none of them

¹ J. Barthoux, *Les fards, pommades et couleurs dans l'antiquité*, Congrès Int. de Géog., Le Caire, Avril 1925, IV, 1926, 251-256.

² A. Lucas, *Ancient Egyptian Materials*, 59, 104, 146-7.

³ G. Brunton, *op. cit.*, 70.

⁴ Two with trace of sulphide of antimony and five with carbon.

⁵ One with trace of sulphide of antimony.

⁶ Nineteenth Dynasty date.

⁷ One specimen was mixed with resin, but Florence and Loret (*op. cit.*, 161) contend that this was a medicinal preparation and not kohl.

⁸ *Natural History*, trans. J. Bostock and H. T. Riley (Bohn's Library), xxxiii, 33, 34.

⁹ E. W. Lane, *The Manners and Customs of the Modern Egyptians* (Everyman's Library), 37.

¹⁰ G. Brunton, *op. cit.*, 63.

¹¹ E. A. Wallis Budge, *The Mummy*, 2nd ed., 1925, 259.

¹² The word employed is "*fards*," which is used apparently to mean eye-paints and not cosmetics generally.

cosmetics) and chrysocolla. Another of the specimens Barthoux suggests may have been composed of bitumen impregnated with aromatic essences. This is described as being chestnut-brown, which is not the colour of bitumen, and apart from the improbability of bitumen having been employed for such a purpose, for which it would be most unsuitable, it is very unlikely that aromatic essences as separate entities, that could be employed for impregnating other substances, were known to the ancient Egyptians, since to obtain them a knowledge of distillation would be necessary, and the evidence at present available makes it probable that this process was not discovered until a very late date¹. A further specimen was rose-coloured and consisted of a mixture of common salt, sodium sulphate, haematite and organic matter, but the composition makes it doubtful whether it was a cosmetic of any sort, and it was almost certainly not an eye-paint. Wax and fatty matter occurred in several instances, but these specimens, although they may have been ordinary cosmetics, were probably not eye-paints, since all the specimens of kohl analysed by Fischer², Florence and Loret³, and the writer, have been free from these substances. In a few cases, too, resin (sometimes aromatic) was present, but these also are unlikely to have been eye-paints, since all the specimens of kohl analysed by others have been free from resin. In one case it is true that a powder examined by von Baeyer consisted of malachite and resin, but Florence and Loret consider this to have been a medicament and not an eye-paint on account of the inscription on the receptacle⁴. Although resin is frequently found in graves, particularly in those of early date, close to or associated with the eye-paint materials malachite and galena, there is no evidence to show for what purpose it was used⁵, and, as already mentioned, all the prepared eye-paints analysed have been free from resin, except the few specimens reported by Barthoux, and that these were indeed eye-paint needs confirmation.

The materials of the early eye-paints, malachite and galena, are both products of Egypt, malachite being found in Sinai and in the eastern desert and galena near Aswan and on the Red Sea coast. The additional materials occasionally employed later, namely carbonate of lead, oxide of copper, ochre, magnetic oxide of iron, oxide of manganese and chrysocolla are also all local products, the only exceptions being compounds of antimony, which, so far as is known, do not occur in Egypt, but which are found in Asia Minor, Persia and possibly also in Arabia⁶.

According to the ancient records eye-paint was obtained in the Twelfth Dynasty from the Asiatics⁷ and in the Nineteenth Dynasty from Koptos⁸, while eye-cosmetics (whether the same material is meant is not clear) were received in the Eighteenth Dynasty from Naharin in western Asia⁹ and from Punt^{10,11}. Although there was no necessity for the Egyptians to import eye-paint from abroad, since all the materials employed, except the rarely used antimony compounds, occur naturally in the country, there would not have been any difficulty in obtaining it from Asia, where the various materials also occur. The eye-paint from Koptos that so puzzled Max Müller may well have been galena from the Red Sea coast, but what eye-cosmetic could have been brought

¹ P. 45.

² A. Wiedermann, *op. cit.*, 41-44.

³ Florence and Loret, *op. cit.*, 153-164.

⁴ Florence and Loret, *op. cit.*, 161.

⁵ Pp. 48, 52, 53.

⁶ R. F. Burton, (a) *The Gold Mines of Midian*, 1878, 168, 375, 390; (b) *The Land of Midian*, 1879, I, xxii, 194.

⁷ J. H. Breasted, *Ancient Records of Egypt*, I, 620, n.d.

⁸ W. Max Müller, *Egyptological Researches*, II, 1910, 88-89.

⁹ J. H. Breasted, *op. cit.*, II, 501.

¹⁰ J. H. Breasted, *op. cit.*, II, 265, 272.

¹¹ A. Erman, *The Literature of the Ancient Egyptians*, trans. A. M. Blackman, 247.

from Punt is a question not easily answered. Punt is chiefly associated with odoriferous gum-resins used as incense (which in the list of articles obtained are enumerated separately), but these are not cosmetics, though they were sometimes employed to impart a fragrance to cosmetics (ointments). It is certainly possible, however, although it seems unlikely, that some mineral substance, not native to Punt (since none likely to have been sent to Egypt is known to occur there) may have reached Egypt by way of Punt, in the same manner as, in Roman times, produce from India was carried to ports on the African coast and thence transhipped to Italy. If this be so, the eye-cosmetic referred to may have been malachite or galena, which were the principal eye-paints of ancient Egypt and both of which occur in Arabia^{1,2}.

Face-Paints.

In addition to painting round the eyes, the ancient Egyptian women probably sometimes also coloured their cheeks, since this is the most reasonable explanation of certain red pigment found in the graves associated with palettes³ and as stains on palettes^{4,5,6,7} and stones⁸ on which it was ground for use. This pigment is a naturally occurring red oxide of iron, generally termed haematite, but which would be more correctly described as red ochre⁹.

Oils, Fats and Perfumes.

An important class of ancient Egyptian cosmetics consisted of oils and fats (ointments), and their use is frequently mentioned in the ancient records^{10,11} and by several of the Greek and Roman writers¹². That in a hot, dry climate, such as that of Egypt, oils and fats should have been applied to the skin and hair was only natural, and the practice still persists in Nubia, the Sudan and other parts of Africa. The oil was probably of more than one kind, that used by the poorer classes, according to Strabo¹³, being castor oil, which grows wild in the country and is still used for the same purpose in Nubia at the present day. Of solid fats the choice was small, being limited to animal fats.

From purely theoretical considerations alone it is exceedingly probable that fragrant substances were sometimes added to these oils and fats, not only to render them more pleasing, but also to mask the tendency of such materials to become rancid and disagreeable. Fortunately, however, it is not necessary to rely on conjecture as there is definite evidence that such indeed was the case, as may now be shown.

¹ R. F. Burton, *op. cit.*, (a) 141, 204, 219, 228, 390 ; (b) I, XI, XXI, XXIII, 55, 66, 75, 76, 267, 269 ; II, 53.

² R. F. Burton, *op. cit.*, (a) 11, 204, 390 ; (b) I, XXII, 266, 269 ; II, 191, 242.

³ C. M. Firth, *Arch. Survey of Nubia, Report for 1910-1911*, 157.

⁴ W. M. Flinders Petrie, *op. cit.*, 37.

⁵ W. M. Flinders Petrie and E. Mackay, *Heliopolis, Kafr Ammar and Shurafa*, 18.

⁶ G. Brunton and G. Caton-Thompson, *op. cit.*, 31.

⁷ J. E. Quibell, *Archaic Objects, Cat. Gén. du Musée du Caire*, I, 226, 227.

⁸ G. Brunton, *op. cit.*, 62.

⁹ Red ochre, which was the only red pigment known in ancient Egypt until very late, was also much employed for painting tombs and other objects, as also by the scribes in writing, and it is found in graves, apart altogether from palettes and from any suggestion of its use in personal adornment.

¹⁰ J. H. Breasted, *op. cit.*, v (Index), 123, 149.

¹¹ A. Erman, *op. cit.*, 8, 61, 99, 102, 156, 202, 207, 209, 244, 246, 249.

¹² P. 45.

¹³ *Geography*, trans. H. C. Hamilton and W. Falconer (Bohn's Library), xvii, 2, 5.

The modern liquid scents and perfumes are solutions in alcohol of various odoriferous principles derived from the flowers, fruits, wood, bark, leaves or seeds of plants, but more generally from flowers. Such perfumes cannot have been known in ancient Egypt at any very early date, since to produce most of them, as well as to produce the alcohol to dissolve them, a knowledge of the process of distillation is essential, and this was almost certainly not discovered until a late period, the earliest reference to it that can be traced being one by Aristotle¹ in the fourth century B.C. Pliny also mentions distillation², and from the methods he describes it seems clear that even in his time (first century A.D.) the process was in a primitive and, therefore, presumably early stage.

After alcohol, the next best medium for absorbing and retaining odours is fat or oil, a fact that is largely made use of at the present day to abstract the scent from flowers, the petals of which are placed in layers of solid fat or soaked in oil, the perfume being afterwards removed by means of alcohol. This method, at least in its entirety, must have been unknown until the process of separating alcohol by distillation from fluids containing it was discovered, though a partial application of it would have been possible without alcohol, since when the fat or oil was thoroughly impregnated with the perfume, if the exhausted petals had been picked out or otherwise removed, a scented fat or oil would have remained. A method of this kind was practised by the Greeks in the time of Theophrastus³ (fourth to third century B.C.), the oil most used being that from the Egyptian or Syrian *balanos*⁴ (*Balanites aegyptiaca*), though olive oil and almond oil were also employed. A similar method was also in use by the Romans of Pliny's day⁵ (first century A.D.), various plants being left to steep in oil and then pressed, or sometimes boiled in oil. That a corresponding process was also employed in Egypt seems indicated by Pliny's enumeration of various oils among the constituents of Egyptian unguents⁶.

Egyptian unguents are described by both Theophrastus and Pliny. The former states that one was made from several ingredients, including cinnamon and myrrh⁷ (the other ingredients not being named), and a second from quince⁸. Pliny says that Egypt was the country best suited of all for the production of unguents⁹, and that at one time those most esteemed in the Roman world were from Mendes⁶, and he describes the Mendesian unguent as being of a very complex composition, consisting originally of oil of ben (*balanus*), resin and myrrh, but at a later period containing oil of bitter almonds (*metopium*), olive oil (*omphacium*), cardamoms, sweet rush, honey, wine, myrrh, seed of *balsamum*, galbanum and turpentine resin⁶. This same writer also states that the ben nut (*myrobalanum*), which grew in the country of the Troglodytae, in the Thebaid and in Ethiopia, yielded an oil particularly suitable for unguents¹⁰; also that Egyptian *elate*¹¹ or *spathe*¹¹ and the fruit of a palm called *adipsos*¹² were all used in making unguents; he also mentions another Egyptian unguent made from *cyprinum*⁶ which he states was an Egyptian tree¹³ and which was probably henna, the leaves of which are odoriferous.

In connexion with henna it may be mentioned that the leaves were possibly used in ancient Egypt, much as they are to-day, in the form of a paste to colour the palms of the hands, the soles of the feet, the nails and the hair. Thus, the Romans certainly employed henna, an Egyptian shrub, for colouring the hair¹⁴, and probably therefore the

¹ *Meteorologica*, II, 2.

² *Op. cit.*, xv, 7 ; xvi, 21.

³ *Enquiry into Plants*, trans. A. Hort (Loeb Library), *Concerning Odours*, II, 341.

⁴ *Op. cit.*, 341, 345.

⁵ *Op. cit.*, XIII, 2 ; xv, 7.

⁶ *Op. cit.*, XIII, 2.

⁷ *Op. cit.*, 353, 355.

⁸ *Op. cit.*, 355.

⁹ *Op. cit.*, XIII, 6.

¹⁰ *Op. cit.*, XII, 46 ; xv, 7.

¹¹ *Op. cit.*, XII, 62.

¹² *Op. cit.*, XII, 47.

¹³ *Op. cit.*, XII, 51.

¹⁴ *Op. cit.*, XXIII, 46.

Egyptians also, and Elliot Smith describes the hair of the mummy of Honttimihou (Eighteenth Dynasty) as being dyed a brilliant reddish colour, which he suggests was done with henna¹. Naville states that the finger nails of an Eleventh Dynasty mummy he examined were tinted with henna², and Maspero thought that the hands of Ramesses II were stained "jaune-clair par les parfums"³. Elliot Smith, however, suggests that the latter were merely discoloured by the embalming material, which may be the case also with the mummy to which Naville refers, as it almost certainly is with the staining of the finger nails of the mummy of Yuua in the Cairo Museum. Newberry has identified twigs of henna from the Ptolemaic cemetery of Hawara⁴.

Besides the perfumes from plants already dealt with and in the absence of animal perfumes (the principal being ambergris, civet and musk), for the use of which in ancient Egypt there is no evidence, the only other likely odoriferous substances that remain for consideration are the plant products, resins and gum-resins, for the use of which to perfume oils and fats there is a certain amount of positive evidence, that may now be considered.

The statement of Theophrastus that a certain Egyptian unguent contained myrrh has already been quoted, as also that of Pliny that resin, turpentine resin, myrrh and galbanum entered into the composition of the Mendesian unguent, and to these may be added some slight evidence from the Egyptian records and from the tombs. Although as a rule, there is little to suggest that any of the oils, fats and ointments, so frequently mentioned in the records, were scented (there being usually either no description of the material or merely a statement of the purpose for which it was employed), there are several exceptions, namely one instance in which the "smell of unguents" is referred to⁵, two others in which "sweet oil of gums"⁶ and two in which "ointment of gums"⁷ respectively are named and, since gums are not odoriferous, but since resins and gum-resins are even to-day often wrongly termed gums, the names suggest a possibility that the oil and ointment referred to may have been perfumed by means of fragrant resins or gum-resins.

From the tombs the evidence leaves much to be desired, but definite facts are gradually being accumulated. Fatty matter has often been found in graves, and this frequently possesses a strong smell^{8,9,10}, but probably in no instance is the smell the original one, nor can it reasonably be called a perfume; in all the cases known to the writer it has always been a secondary smell due to chemical changes that have taken place in the fat, and it is often suggestive of rancid coconut oil¹¹ and in one instance of valeric acid¹¹. Very few examples of this fatty matter have been analysed, and there is no definite proof that any of the specimens were cosmetics, though in one instance this is very probable. Sometimes the fatty matter consists largely of mixed palmitic and

¹ G. Elliot Smith, *The Royal Mummies, Cat. Gén. du Musée du Caire*, 19.

² E. Naville, *The Eleventh Dynasty Temple at Deir-el-Bahari*, I, 1907, 44.

³ G. Elliot Smith, *op. cit.*, 60-1.

⁴ P. E. Newberry, *On the Vegetable Remains discovered in the Cemetery of Hawara*, in *Hawara, Biahmu and Arsenoe*, W. M. Flinders Petrie, 50.

⁵ A. Erman, *op. cit.*, 156.

⁶ J. H. Breasted, *op. cit.*, IV, 497, 498.

⁷ J. H. Breasted, *op. cit.*, IV, 476, 477.

⁸ W. M. Flinders Petrie, *The Royal Tombs of the First Dynasty*, I, 14.

⁹ G. A. Wainwright, *Balabish*, 14.

¹⁰ W. M. Flinders Petrie and J. E. Quibell, *Nagada and Ballas*, 27, 39, 40.

¹¹ A. Lucas, in *The Tomb of Tut-ankh-Amen*, Howard Carter, II, Appendix, II, 176, 177.

stearic acids^{1,2,3}, probably representing an original animal fat, while in other cases it consists chiefly of stearic acid^{1,4}, which suggests that it was at one time castor oil. Four specimens examined have been mixed with solid material that has not been identified^{1,5}, but which in one instance was possibly a balsam³. According to Pliny⁶, however, the Roman perfumers of his day (and possibly, therefore, the Egyptian perfumers also) thought that gum or resin added to a cosmetic fixed the perfume, and it seems possible that the solid matter referred to may have been not a fragrant resin or gum-resin added to perfume the fat, but a non-odoriferous gum or resin used to fix a perfume obtained from some other source. Five specimens of material, all very much alike, from different compartments of a toilet box of unknown date examined by Gowland gave results from which he concluded that the material consisted of beeswax mixed with an aromatic resin and a small proportion of vegetable oil⁷.

Eight specimens of materials of unknown date, thought to be perfumes, examined by Reutter, are stated to have consisted generally of a mixture of all or most of the following-named substances, storax, incense, myrrh, turpentine resins, bitumen of Judea perfumed with henna, aromatic vegetable material mixed with palm wine or the extract of certain fruits (such as cassia or tamarind) and grape wine⁸. These analyses were made on very small quantities of materials (from 0.498 gram to 2.695 grams), and the conclusions are much too definite for the chemical results obtained. Thus, that a very minute residue of black material, suggestive of bitumen and containing sulphur, was obtained from each specimen is not questioned, but the evidence is not sufficient to prove that this was bitumen of Judea. Such a residue is not infrequent in the case of organic substances of the nature of those examined, especially when they are several thousands of years old. That bitumen was added to perfumes and in such very small proportions as the black residue represented is not only not warranted by the evidence, but is most improbable. The correctness, too, of the identification of so many different substances in the one mixture, particularly when dealing with such small quantities as were examined, needs confirmation.

Incense.

Since the word incense (Latin *incendere*, to burn or kindle) has the same literal meaning as the word perfume, which is the aroma given off with the smoke (*per fumum*) of any odoriferous substance when burned, incense, therefore, should be included in any description of ancient Egyptian perfumes.

¹ A. Lucas, in *The Tomb of Tut-ankh-Amen*, Howard Carter, II, Appendix, II, 176, 177.

² W. M. Flinders Petrie and J. E. Quibell, *Nagada and Ballas*, 39.

³ A. C. Chapman and H. J. Plenderleith, *Examination of an Ancient Egyptian (Tut-ankh-Amen) Cosmetic*, in (a) *Journ. Chem. Soc.*, CXXIX (1926), 2614-2619; in (b) *The Tomb of Tut-ankh-Amen*, Howard Carter, II, Appendix, IV, 206-210.

⁴ J. E. Quibell, *The Tomb of Yuasa and Thuiu*, 75-77. Analysis by the writer.

⁵ These included the specimen examined by Chapman and Plenderleith and previously by the writer together with three apparently somewhat similar specimens examined by the writer.

⁶ *Op. cit.*, XIII, 2.

⁷ W. Gowland, *Proc. Bibl. Arch.*, XX (1898), 268-269.

⁸ L. Reutter, *Analyses des parfums égyptiens* in *Annales du Service des Antiq. de l'égypte*, XIII (1914), 49-78.

That incense was employed in ancient Egypt there can be no doubt. Both incense^{1,2} and incense burners (censers)³ are mentioned in the ancient records and the offering of incense is shown in the illustrations to the Book of the Dead^{4,5} and is very frequently pictured in temples and tombs and incense^{6,7,8} and incense burners^{9,10,11,12} have been found in graves.

At what date incense was first used in Egypt is uncertain, but the earliest references that can be traced are of the Fifth¹³ and Sixth¹⁴ Dynasties respectively, and an incense burner of the Eighth Dynasty⁹ has recently been discovered. The earliest certain incense of which the writer has any knowledge is from the end of the Eighteenth Dynasty, which was in the shape of small balls similar to those so frequently depicted on monuments⁷. Incense of the Ptolemaic period from the graves of the priests of Philae found by Reisner was also partly in the form of balls and partly as discs⁸. It is recorded, too, that incense was among the foundation deposits of the tomb of Aahmes I⁶, but that this was prepared incense, such as that just mentioned, needs confirmation. It is described as being in "pieces" and is much more likely to have been the dark brown resin, lumps of which so frequently occur in graves, particularly, but not exclusively, in those of early date. The purpose for which this resin was employed has never been determined, and it is possible that it may have been for use as incense. As a rule, the smell produced when this resin is burned is not fragrant according to modern ideas, being very like that of burning varnish, but occasionally specimens are found that are aromatic. If incense, this resin was the forerunner of the more sweet-smelling and probably much more rare and expensive frankincense and myrrh and, if not incense, then the almost entire absence in graves of one of the most commonly employed materials in the religion and magic of ancient Egypt remains unexplained¹⁵. Possibly, too, even after frankincense and myrrh became known in Egypt their use was restricted to special occasions on account of their rarity and price, a more easily obtained and cheaper material being employed for ordinary purposes and by the poorer people, which would explain the occurrence of this brown resin in the graves of all periods and of all ranks.

The two best known and most important modern incense materials are frankincense and myrrh, which may now be described.

Frankincense or Olibanum.

This has been regarded from a very early period, and is still regarded, as true or genuine incense. It is a fragrant gum-resin occurring in the form of large tears, generally

¹ J. H. Breasted, *op. cit.*, v (Index), 134.

² A. Erman, *op. cit.*, 28, 33, 34, 40, 91, 102, 103, 105, 133, 209, 235, 239, 247, 287, 293.

³ J. H. Breasted, *op. cit.*, v (Index), 113.

⁴ E. A. Wallis Budge, *The Papyri of Hunefer, etc.*, 1899, Pls. 6, 7.

⁵ British Museum, *The Papyrus of Ani*, 1890, Pl. v.

⁶ E. R. Ayrton, C. T. Currelly and A. E. P. Weigall, *Abydos*, III, 1904, 34.

⁷ A. Lucas, in *The Tomb of Tut-ankh-Amen*, Howard Carter, II, Appendix, II, 184.

⁸ G. A. Reisner, *Arch. Survey of Nubia, Report for 1907-1908*, I, 85.

⁹ G. Brunton, (a) *op. cit.*, 35; (b) *Qau and Badari*, II, 6; Pl. lxxxviii, 98 d.

¹⁰ G. A. Reisner, *op. cit.*, 78, 82, 83, 85, 86, 87, 89, 90, 91, 92.

¹¹ C. M. Firth, *op. cit.*, *Report for 1909-1910*, 112; *Report for 1910-1911*, 52, 53, 57, 59, 60, 61, 65, 66, 73, 78, 199.

¹² W. M. Flinders Petrie, *Denderah*, 34.

¹³ J. H. Breasted, *op. cit.*, I, 161.

¹⁴ J. H. Breasted, *op. cit.*, I, 336, 369.

¹⁵ This resin will be described further after the ordinary incense materials have been dealt with.

of a light yellowish-brown colour, though the purer varieties are almost colourless. It is translucent when fresh, but after transport (which is necessarily the condition in which it comes into commerce) it becomes covered with its own fine dust, produced by friction between the pieces, and the outside is then semi-opaque. Most other incense materials are more definitely coloured, many of them being dark yellow, dark yellowish-brown or, in a few cases, grey or black. The white incense, therefore, mentioned in the Papyrus Harris¹ (Twentieth Dynasty) suggests frankincense, since this is more nearly white than any other incense material. Pliny states that whiteness was one of the features whereby a good quality of frankincense (Latin, *Thus*) might be recognized², and its name in Hebrew, Greek and Arabic signifies milk-white.

Frankincense is yielded by certain trees of the genus *Boswellia*, growing principally in Somaliland and southern Arabia. A variety of frankincense, however, is obtained from *Commiphora pedunculata*, which grows in the eastern Sudan near Gallabat³ and also in the adjoining parts of Abyssinia. The statements in the ancient records, therefore, that incense reached Egypt from Negro tribes in the Sixth Dynasty⁴ and from Punt in the Eighteenth⁵ and Twentieth⁶ Dynasties in no way conflict with it having been frankincense, since Punt (whether Somaliland or southern Arabia) is the home of frankincense, while the Negro tribes dwelt to the south of Egypt, and a product of Punt or of the eastern Sudan might easily have passed through their country on its way to Egypt. Even the incense obtained from Retenu⁷, Zahi⁸ and Naharin⁹ in the Eighteenth Dynasty may have been, at least in part, frankincense, since there would not have been any great difficulty in a product of southern Arabia reaching western Asia, though, on the other hand, this source suggests some other kind of incense material.

Pliny states in one place¹⁰ that the frankincense tree (*Thus*) grew in Carmania and Egypt, into which latter country it was introduced by the Ptolemies, but in another place¹¹ he says that it was ladanum (*Ladanum*) that was found originally in Carmania, and that was planted by order of the Ptolemies "in the parts beyond Egypt."

The trees brought by Hatshepsut's expedition from Punt, which are depicted on the walls of the queen's mortuary temple at Dêr el-Bahri, are termed myrrh by Breasted¹² and frankincense by Naville¹³ and are stated by Schoff¹⁴ to be *Boswellia Carteri*, the frankincense tree of Dhofar in southern Arabia. Representations of about 30 trees, or parts of trees, still exist on the walls of the temple, two forms being shown, one having luxuriant foliage and the other quite bare, but whether they are the same tree depicted differently or at different seasons of the year, or whether they are two entirely different trees there is nothing to indicate. In any case, however, they are drawn in so conventional a manner that there cannot be any certainty about their identity. Schoff takes note only of the trees with foliage (which are those usually copied) ignoring altogether those

¹ J. H. Breasted, *op. cit.*, IV, 233, 239, 299, 344, 376.

² *Op. cit.*, XII, 32.

³ Through the courtesy of the District Commissioner, Gallabat, the writer has been able to obtain some of this incense for examination. There are also specimens in the Imperial Institute Museum, London.

⁴ J. H. Breasted, *op. cit.*, I, 336, 369.

⁵ J. H. Breasted, *op. cit.*, II, 265.

⁶ J. H. Breasted, *op. cit.*, IV, 130.

⁷ J. H. Breasted, *op. cit.*, II, 447, 472, 473, 491, 518, 525, 616.

⁸ J. H. Breasted, *op. cit.*, II, 462, 509, 510, 519.

⁹ J. H. Breasted, *op. cit.*, II, 482.

¹⁰ *Op. cit.*, XII, 31.

¹¹ *Op. cit.*, XII, 37.

¹² J. H. Breasted, *op. cit.*, II, 264, 265, 272, 288.

¹³ E. Naville, *The Temple of Deir el-Bahari*, III, 12.

¹⁴ H. Schoff, notes to *The Periplus of the Erythraean Sea*, 1912, 218.

without foliage, and he says that the rich foliage cannot be meant to represent "the bare, thorny, trifoliate, but almost leafless myrrh tree, nor the almost equally leafless varieties of Somaliland frankincense." It seems possible, however, that the trees without foliage may be intended for these very things.

Among the imports into Egypt in the Roman period on which duty was levied was frankincense¹ (both African and Arabian), and Pliny states² that this material was prepared for sale (presumably by cleaning and sorting) at Alexandria.

Lane says³ that the Egyptian women of his day chewed frankincense in order to perfume their breath.

The incense from the tomb of Tut-ankh-Amen, already mentioned, which has been examined by the writer, is possibly frankincense.

Myrrh.

Myrrh, like frankincense, is a fragrant gum-resin and is obtained from the same countries as frankincense, namely, Somaliland and southern Arabia. It is derived from various species of *Balsamodendron* and *Commiphora*, and occurs in the form of yellowish-red masses of agglutinated tears, often covered with its own fine dust; it is never white or green and so cannot be either the white⁴ or green⁵ incense referred to in the ancient records. In Breasted's translation of these records it is stated that myrrh was obtained from Punt (Fifth⁶, Eleventh⁷, Eighteenth⁸, Twentieth⁹ and Twenty-fifth¹⁰ Dynasties) and from Genebteyew¹¹ (Eighteenth Dynasty), which is in agreement with its known origin. Even the receipt of myrrh from Retenu¹² in western Asia (Eighteenth Dynasty) is not impossible, since it might readily have reached Retenu from Arabia.

Theophrastus and Pliny have already been quoted¹³ for the statements that myrrh entered into the composition of certain Egyptian unguents, and Plutarch mentions the use of myrrh as incense in Egypt¹⁴.

Myrrh has been identified by Reutter in ancient Egyptian perfumes¹⁵ (undated), and specimens of gum-resin from certain royal and priestly mummies of the Eighteenth, Nineteenth, Twentieth and Twenty-first Dynasties respectively examined by the writer were probably myrrh¹⁶.

Incense other than Frankincense and Myrrh.

Satisfactory incense materials other than frankincense and myrrh are very few and must have been still fewer in ancient Egypt, since such substances as benzoin and camphor from the Far East and, in the earlier periods, the products of India were probably not then available. Speculation, however, as to what might have been employed is of little value and may be misleading, and only those materials will be mentioned for the use of which in Egypt there is some evidence, and these are limited to galbanum, ladanum, and storax, which may now be described.

¹ H. Schoff, *op. cit.*, 289.

² *Op. cit.*, XII, 32.

³ E. W. Lane, *op. cit.*, 194.

⁴ J. H. Breasted, *op. cit.*, IV, 233, 239, 299, 344, 376

⁵ J. H. Breasted, *op. cit.*, II, 572.

⁶ J. H. Breasted, *op. cit.*, I, 161.

⁷ J. H. Breasted, *op. cit.*, I, 429.

⁸ J. H. Breasted, *op. cit.*, II, 265, 274, 276, 277, 321, 486.

⁹ J. H. Breasted, *op. cit.*, IV, 130, 210, 407.

¹⁰ J. H. Breasted, *op. cit.*, IV, 929.

¹¹ J. H. Breasted, *op. cit.*, II, 474.

¹² J. H. Breasted, *op. cit.*, II, 491.

¹³ P. 45.

¹⁴ *Isis and Osiris*, French trans., M. Meunier, 1924, 164.

¹⁵ L. Reutter, *Analyses des parfums égyptiens*, in *Annales du Service*, XIII (1914), 49-78.

¹⁶ A. Lucas, *Preservative Materials used by the Ancient Egyptians in Embalming*, Cairo, 1911, 26-29.

Galbanum.

This is a fragrant gum-resin generally occurring in masses of agglomerated tears and is of a light brownish-yellow to a dark brown colour, with often a greenish tint; it has a greasy appearance and, though usually hard, it may occasionally be of semi-solid consistency; it is a native of Persia and a product of various species of the umbelliferous plant *Peucedanum*, of which *P. galbaniflorum* is the most important. This is the only incense material that is at all green known to the writer, though it is stated¹ that frankincense may occasionally have a greenish tint. As there would not have been any difficulty in galbanum reaching Egypt from Persia in the Eighteenth Dynasty, this may well have been the green incense mentioned in the ancient records². According to Pliny³, galbanum was one of the constituents of the Mendesian unguent, and it is mentioned in the Bible as entering into the composition of Jewish incense⁴. There is no record of galbanum having been found in ancient Egyptian graves.

Ladanum.

This, unlike the other incense materials described, is a true resin and not a gum-resin; it occurs in dark brown or black masses, which are often viscid or easily softened by handling, and is obtained from various species of *Cistus* that grow in Asia Minor, Crete, Cyprus, Greece, Palestine, Spain and other parts of the Mediterranean region, though not at the present time in Egypt. Pliny, however, states⁵ that the Ptolemies introduced the *Cistus* into "the parts beyond Egypt," from which it follows, if the statement is true, and if Egypt be meant, first, that the *Cistus* has been grown in the country and second, either that it was not grown previous to the time of the Ptolemies or, that, if once grown, it had disappeared.

Newberry has recently suggested⁶ that the ancient Egyptians were acquainted with ladanum as early as the First Dynasty. From purely theoretical considerations this is only what might be expected, since, even if ladanum was not an Egyptian product, it was abundant in countries bordering the Mediterranean with which Egypt had intercourse and from which it might easily have been obtained. No positive evidence, however, can be found for this early use. The earliest literary references known to the writer for the use of ladanum in Egypt are in the Bible, where it is stated that certain merchants carried ladanum into Egypt from Gilead⁷ and that Jacob sent ladanum to Egypt as a present to his son Joseph⁸. The date of this record is probably not earlier than the tenth century B.C. and possibly as late as the eighth century B.C. Incidentally it may be noted that the sending of ladanum from Palestine to Egypt suggests that ladanum was not at that time a product of Egypt. The next literary reference in date order that can be traced is the one already quoted from Pliny in the first century A.D. In modern times Lane states that it was customary for the Egyptian women of his day to chew ladanum to perfume their breath⁹.

So far as is known, the only instance of ladanum having been found in connexion with ancient Egypt is a specimen of Coptic incense of the seventh century from Faras

¹ F. H. Butler, in *Ency. Brit.*, 11th ed., 1910, Art. *Frankincense*. The present writer, who has examined a large number of specimens of frankincense from different sources, has never seen any with even the slightest tinge of green colour.

² J. H. Breasted, *op. cit.*, II, 572.

⁴ *Exodus*, xxx, 34 (Revised Version).

⁶ *Journal*, xv (1929), 94.

⁸ *Genesis*, xliii, 11 (Revised Version).

³ *Op. cit.*, XIII, 2.

⁵ *Op. cit.*, XII, 37.

⁷ *Genesis*, xxxvii, 25 (Revised Version).

⁹ E. W. Lane, *op. cit.*, 194.

near Wâdî Halfa, which was examined by the writer and the results published some years ago¹. This was a fragrant, black resin containing 31 per cent. of mineral matter and is believed to be ladanum.

Storax.

Storax (*Styrax*) is a balsam obtained from the tree *Liquidamber orientalis*, belonging to the natural order *Hamamelideæ*, indigenous to Asia Minor. It is a turbid, viscid greyish liquid having an odour like benzoin and belongs to the same class of bodies, the distinguishing feature of which is that they contain either cinnamic or benzoic acid, storax containing the former. At one time the name storax was applied to the solid resin obtained from *Styrax officinalis*, which somewhat resembles benzoin. Reutter has identified storax in Egyptian mummy material² and in ancient Egyptian perfumes³, both unfortunately undated.

Miscellaneous Incense Materials.

Specimens of various miscellaneous materials of ancient Egyptian origin submitted as incense have been examined by the writer from time to time and may now be described. One of these was Coptic incense of the same date and from the same place as that already described when dealing with ladanum. This second specimen, however, was very different; it was in irregular-shaped pieces of a dark reddish-brown colour, translucent when freshly fractured, very resinous-looking and possessed a fragrant smell. On analysis it proved to be a true resin, as distinguished from a gum-resin, and therefore could not be frankincense, myrrh, galbanum or storax, and its colour was not that of ladanum; it was not identified¹. A specimen of material found by Legrain at Karnak was dull and opaque in appearance, and on analysis proved to be a true resin mixed with 76 per cent. of limestone dust. Although described by the finder as incense, it is suggested that it was a cementing material similar to that discovered at Karnak a few years later by Pillet and examined by the writer⁴.

That frankincense occurs in the Sudan has already been stated, but in addition there are also other materials that might be employed as incense, though whether they have been so used and to what extent they occur is unknown. The writer has examined two of these, one *Gafal* resin stated to be obtained from *Balsamodendron africanum* and the other the product of *Gardenia Thunbergia*. The *Gafal* resin was in the shape of irregular-shaped masses, yellowish, light brown or dark brown in colour and generally translucent and very resinous-looking. The *Gardenia Thunbergia* product was also in irregular lumps, but very different in appearance from the *Gafal* resin; it varied in colour from a light yellowish-brown to black and was entirely opaque. Both materials are fragrant gum-resins and seem very suitable for incense purposes.

Resin of Unknown Significance from Egyptian Graves.

Resin is one of the commonest materials in ancient Egyptian graves of all periods, and particularly in those of predynastic and early dynastic date, but the use of this resin has never been explained. It is now suggested that it may have been for incense

¹ A. Lucas, *Preservative Materials used by the Ancient Egyptians in Embalming*, Cairo, 1911, 31-32.

² L. Reutter, *De l'embaumement avant et après Jésus-Christ*, Paris, 1912, 49, 59.

³ L. Reutter, *Analyses des parfums égyptiens*, in *Annales du Service*, XIII (1914), 49-78.

⁴ M. Pillet, *Annales du Service*, XXIV (1924), 64-65.

purposes. That resin was employed in mummification, as varnish, as a cementing material and for beads and other personal ornaments is well known, but the particular resin now referred to is a marked feature in burials long before mummification was practised and almost certainly, too, before resin was used for the other purposes mentioned. It is of several kinds, generally of a dull brown colour on the outside, but brighter and more resinous-looking in the interior; very friable and with a characteristic faceted appearance when fractured, though occasionally reddish-brown or reddish-yellow and translucent and then very like colophony in appearance. A considerable amount of chemical work has already been done by the writer on these materials¹ and this is being continued, but as yet their botanical source has not been identified. Some of the specimens, however, are true resins and not gum-resins, which suggests coniferous trees from Asia as their origin.

Conclusions.

The various facts enumerated make it highly probable that ancient Egyptian incense consisted, in part at least, of frankincense and myrrh obtained from Somaliland and southern Arabia, as generally accepted, but that other materials, including galbanum and storax from Asia and ladanum from Palestine or southern Europe were also employed, though possibly not until a comparatively late period. It is suggested, too, that the brown resin so common in Egyptian graves of all periods, but particularly in those of predynastic and early dynastic date, may have been the original incense material employed in Egypt, which continued in use as a cheap substitute for frankincense and myrrh, especially for burial purposes, even after more fragrant materials were known. It is further suggested that this early resin was procured from Asia.

¹ A. Lucas, *Preservative Materials used by the Ancient Egyptians in Embalming*, 20-49.